Space Weather Forecast

Issued on Tuesday 19 November 2024 at 12:53 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Faster solar winds solar winds bring a likelihood of enhanced geomagnetic activity at times.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate during the past 24 hours, with Moderate class flares observed yesterday afternoon. There are currently eight sunspot regions on the visible disc. A sunspot near the southeast limb, is showing some magnetic complexity, although this remains difficult to analyse due to its viewing angle. The largest sunspot region remains in the far west and is beginning to rotate off the disc and around the western limb. No Earth-directed Coronal Mass Ejections (CMEs) were observed over the past 24 hours in available imagery.

Solar Wind / Geomagnetic Activity: Slightly elevated solar winds reached between 400-480km/s, peaking at 18/1441 UTC, before declining to be Slow.

The magnetic field, was weak to moderate. The north-south component was weakly negative (southwards) throughout the period. Geomagnetic activity was quiet (0-2Kp).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with a daily chance of Moderate flares and a persistent slight chance of isolated Strong flares.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in the forecast.

Slow solar winds around 350-400km/s are expected during Day 1 (19 Nov) and Day 2 (20 Nov) with an increasing risk of enhancement from coronal holes which are now approaching the centre disc. As a result, winds are expected to increase to Slightly elevated with speeds 450-500km/s arriving towards the end of Day 3 (21 Nov) and into Day 4 (22 Nov).

Quiet to Unsettled (Kp0-3) conditions expected through much of the period. Activity probably increasing through Days 3 and 4 (21-22 Nov) becoming generally Unsettled to Active (Kp3-4) with a chance of G1 Minor Geomagnetic Storm intervals depending on the strength of any enhancement from the coronal holes.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Energetic Particles / Solar Radiation: Solar radiation storms are not expected.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	**G1 to G2**	No	1	1	20	20
Strong	**G3**	No	1	1	1	1
Severe	**G4**	No	1	1	1	1
Extreme	**G5**	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**R1-R2 (M Class)**	Yes	50	50	50	50
Very Active	**R3-R5 (X Class)**	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	5	5	5	5
Very Active	**≥ S3 ***	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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